Ozone National Ambient Air Quality Standard Health Exceedance on May 29, 2016

Exceedance Location and Levels

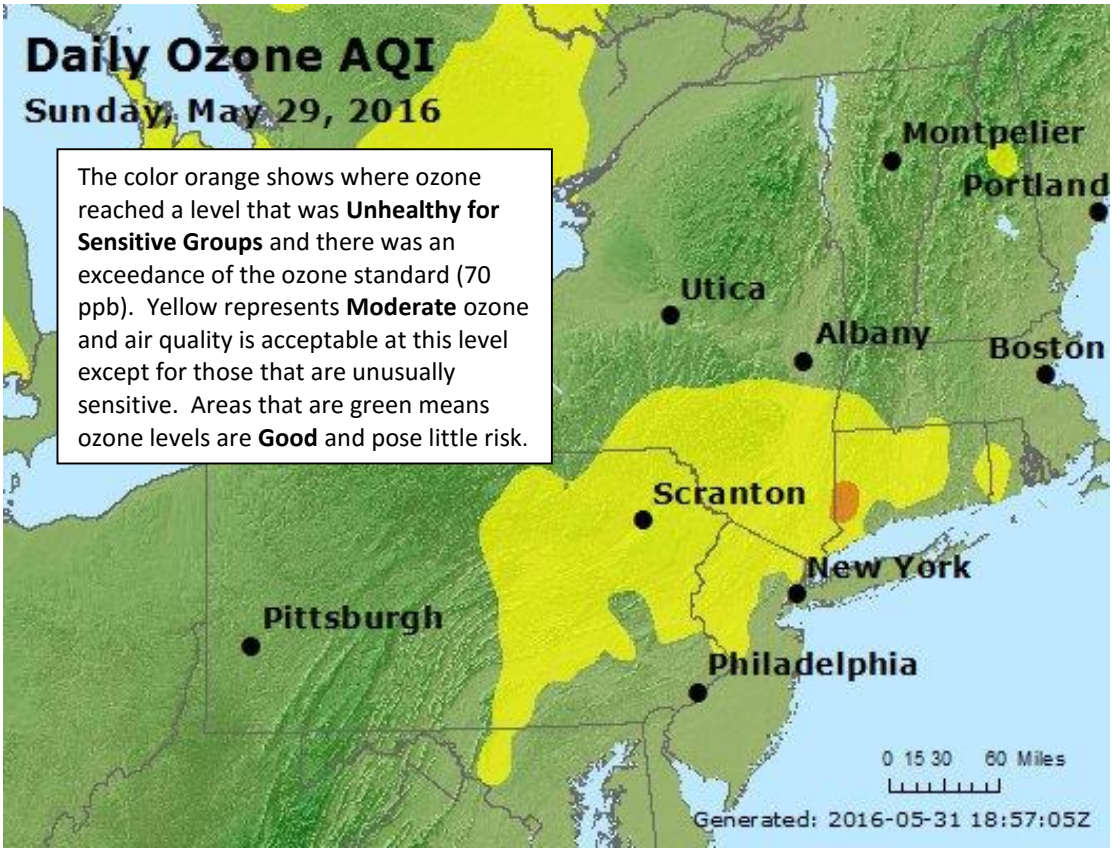
On Sunday, May 29, 2016, there were no exceedances in New Jersey of the new 8-hour average ozone NAAQS of 70 ppb that became effective in December 2015. The number of days in 2016 on which exceedances of the new 8-hour ozone NAAQS of 70 ppb were recorded in New Jersey remains at five (5). By the 29th of May in 2015, there were a total of 2 days on which ozone exceedances were measured in New Jersey (based on the 75 ppb NAAQS of 2008), and there was one day by this same date in 2014.

There is a group of monitoring stations in designated counties of five (5) states, New York, Connecticut, Pennsylvania, Delaware and Maryland, which are included in New Jersey's ozone nonattainment areas. From this group of stations in the other neighboring states, there was one (1) exceedance of the new 8-hour ozone NAAQS of 70 ppb recorded on Sunday, May 29, 2016 in Connecticut: Danbury with a concentration of 73 ppb.

No stations exceeded the 75 ppb ozone NAAQS of 2008, and none exceeded the 84 ppb ozone NAAQS of 1997. The highest 1-hour average ozone concentration recorded was 93 ppb at Danbury, CT, which is below the 1-hour ozone NAAQS of 120 ppb.

Sunday marks the 7th day in 2016 on which exceedances of the new 8-hour ozone NAAQS of 70 ppb were recorded in Connecticut. The number of days on which exceedances were recorded in New York remains at four (4), and two (2) days for Delaware, Maryland, and Pennsylvania.

Figure 1. Ozone Air Quality Index for May 29, 2016



Source: www.airnow.gov

For ozone terminology definitions see NJDEP Air Quality Planning's Glossary and Acronyms webpage: http://nj.gov/dep/baqp/glossary.html

Weather

Meteorological data from Danbury Municipal Airport in Connecticut shows temperatures reached 86° F. Winds were calm in the early morning hours and then shifted to a light southerly flow at the surface for the remaining period. Skies were sunny with a high pressure system over the Smoky Mountains and a stationary front set up along northeastern Connecticut. Sufficient sunlight and warm temperatures are features commonly seen with an ozone exceedance. Although south winds are not usually associated with high ozone days, very light winds are, as they allow pollutants to accumulate at the surface.

Where Did the Air Pollution that Caused Ozone Come From?

Figure 2 shows the back trajectories for the monitored exceedance on May 29. Figure 2 illustrates that low level (10 meter), mid-level (500 meter), and higher level (1500 meter) winds came out of the north/ northeast, which typically is a cleaner air mass and winds coming from this direction result in good air quality. However, in this case that statement does not hold true. Sunday, May 29, 2016 was the last day of a 5-day regional high ozone episode affecting the northeast and mid-Atlantic. The high ozone recorded on May 29th at the Danbury station was due to a dirty air mass already in place (see Figure 3

for May 28, 2016 ozone levels), combined with local emissions from cars, trucks, and industry in southwestern Connecticut.

Figure 2. 48-hour Back Trajectories for May 29, 2016

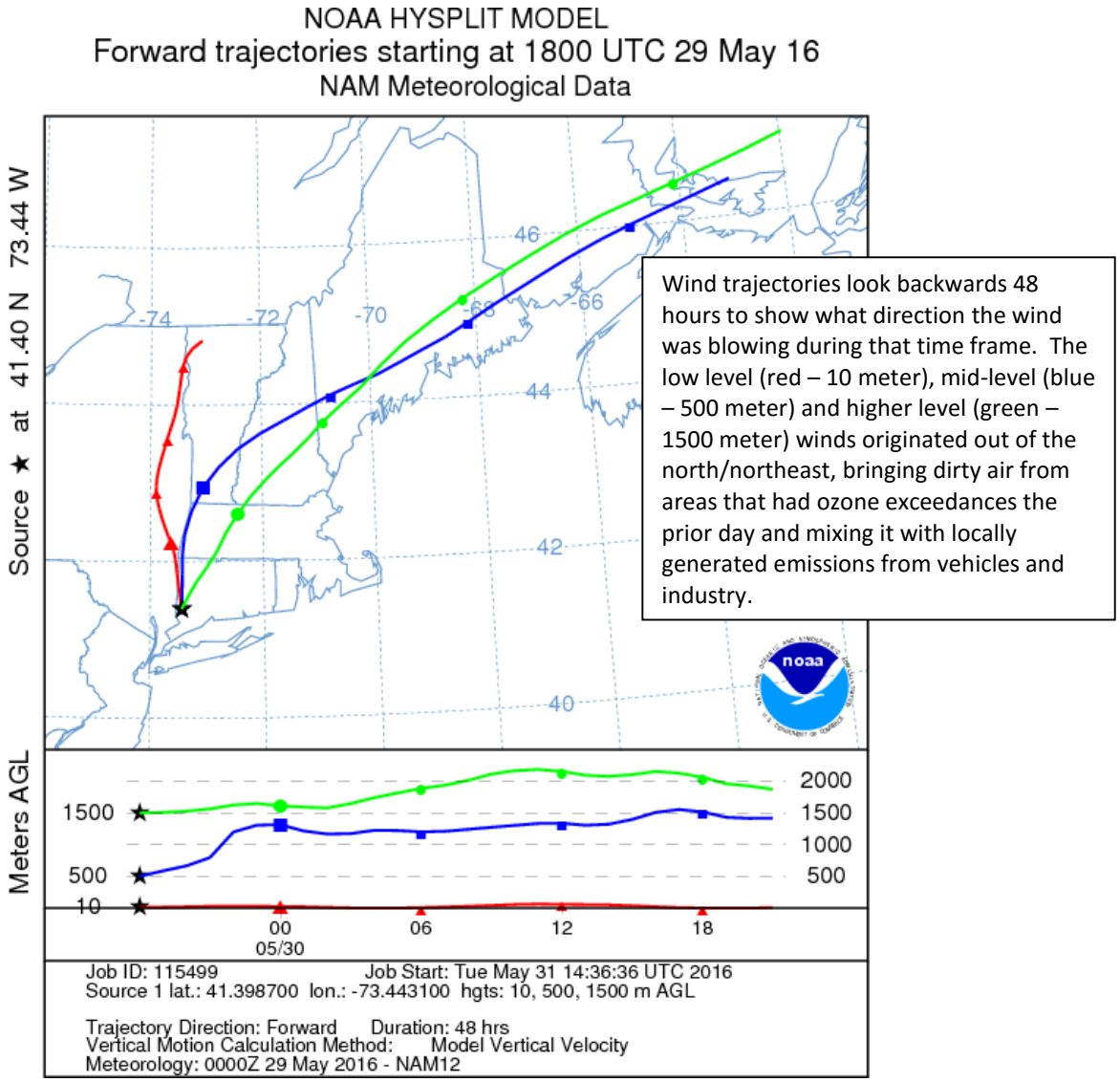
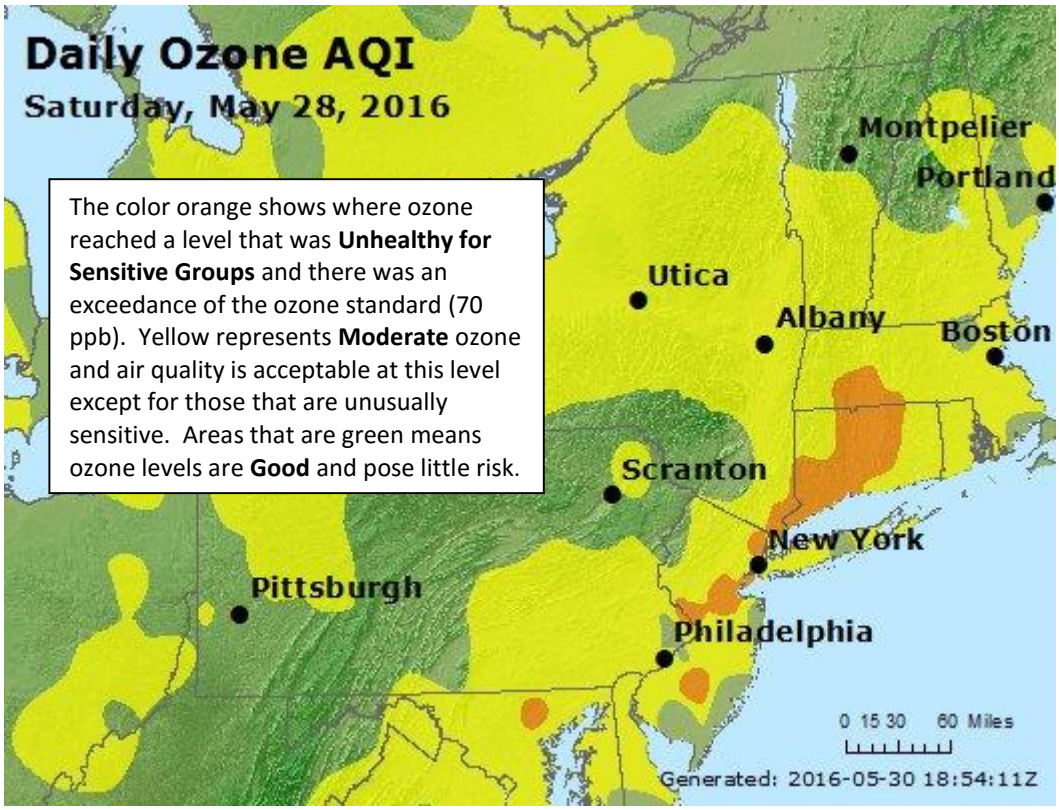


Figure 3. Ozone Air Quality Index for the Mid-Atlantic and Northeast Regions on May 28, 2016



How is Smog Created?

Ground-level ozone, also known as smog, is an air pollutant known to cause a number of health effects and negatively impact air quality and the environment in the state of New Jersey. Smog is formed when oxides of nitrogen (NOx) and volatile organic compounds (VOCs) react in the presence of sunlight. Smog can irritate any set of lungs, but those with lung-related deficiencies should take extra precautions on bad ozone days.

Find Out About Air Quality Every Day

The "What's Your Air Quality Today?" page at http://www.nj.gov/dep/cleanairnj/ tells you how to sign up to receive notifications and find out when your local air has reached unhealthy ozone levels.